9-1-1981

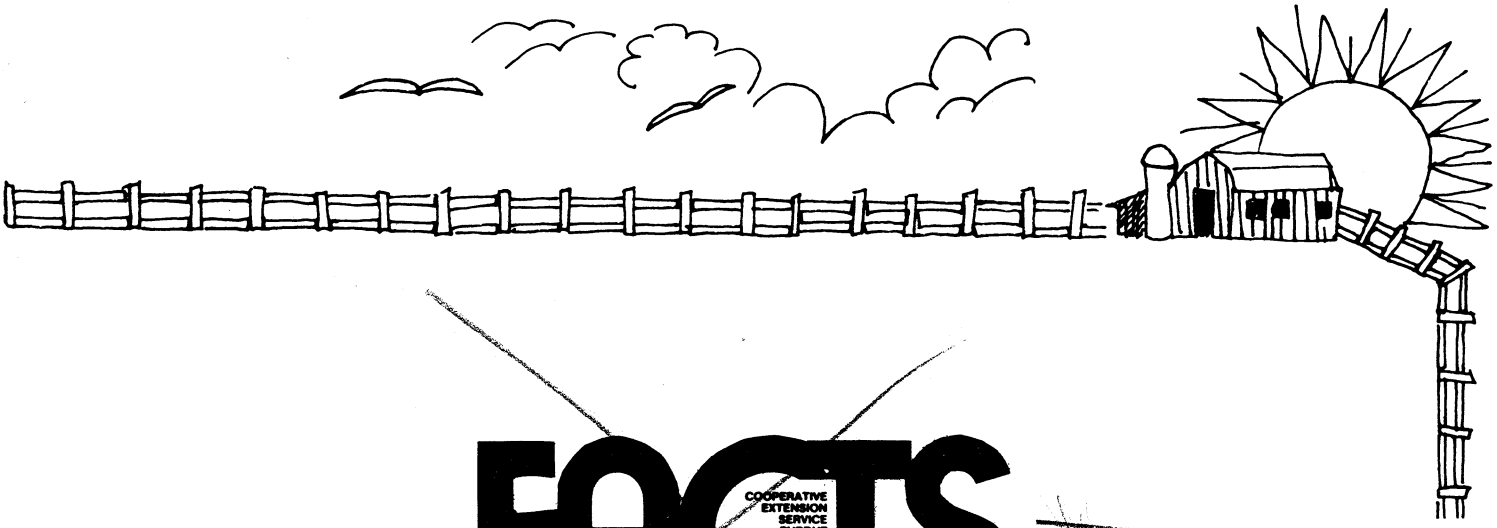
Agricultural Economics Computer Programs in Farm Management and Marketing

Don Pershing

Ed Carson

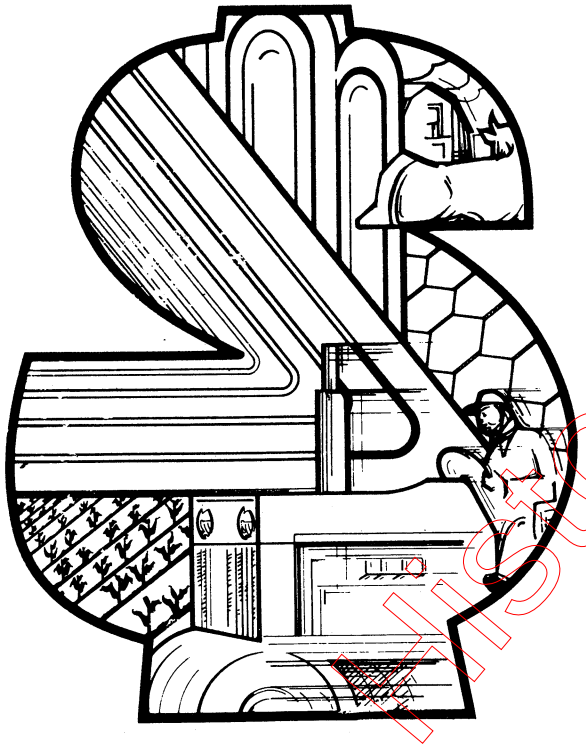
Craig Dobbins

EC-540



FACTS

COOPERATIVE EXTENSION SERVICE PURDUE UNIVERSITY WEST LAFAYETTE INDIANA



Agricultural Economics Computer Programs In Farm Management And Marketing

Rev. 9/81

Agricultural Economics Computer Programs for FACTS

Don Pershing, Ed Carson and Craig Dobbins
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PURDUE UNIVERSITY

The purpose of this publication is to provide examples of the Farm Management and Marketing related computer programs that are available on the county FACTS (Fast Agricultural Communications Terminal System) termina The first section (page 1 and 2) briefly describes the purpose of the computer models. The second section provides examples which illustrate the type of data that is needed to run each of the programs and the results that the user will receive.

For more detailed information about any of these programs, see the respective Users' Guide. Copies of the Users' Guide are available for consultation in each County Extension Office.

Further programs are being developed and tested. They will be included in future editions of this publication when they are released.

MAXIMUM BID PRICE CALCULATION on 19-Jan-81
for: LAND BUYER

Input data:

1)	Average price of comparable parcels	$2,400 per acre
2)	Desired after tax return on capital	11.0 %
3)	Return to land before income taxes	$100.00 per acre/year
4)	Rate of change in return to land	7.0 %
5)	Purchase price down payment	20.0 %
6)	Mortgage interest rate	13.00 %
7)	Mortgage repayment period	30 years
8)	Land value rate of change	8.0 % per year
9)	Planning horizon	15 years
10)	Marginal income tax rate	40.0 %

MAXIMUM BID PRICE: $2,548 per acre

CASH FLOWS USING MARKET VALUES

For a level payment loan, the annual mortgage payment based on a land value of $2,400 per acre, 13.00 percent interest, and a 30 year repayment period is $256.15.

This is more than the additional income and tax savings associated with the purchase. Thus, income from other enterprises must be used to supplement this purchase.

Year	After-tax income	Tax Savings	Supplemental income needed	Area land values
1	64.20	99.84	92.11	2,592
2	68.69	99.50	87.95	2,799
3	73.50	99.11	83.53	3,023
4	78.65	98.68	78.82	3,265
5	84.15	98.19	73.81	3,526
6	90.04	97.63	68.47	3,809
7	96.35	97.01	62.80	4,113
8	103.09	96.30	56.76	4,442
9	110.31	95.50	50.34	4,798
10	118.03	94.59	43.53	5,181
11	126.29	93.57	36.29	5,596
12	135.13	92.41	28.61	6,044
13	144.59	91.11	20.45	6,527
14	154.71	89.63	11.81	7,049
15	165.54	87.96	2.64	7,613

CASH FLOWS USING MAXIMUM BID PRICE

For a level payment loan, the annual mortgage payment based on a land value of $2,548 per acre, 13.00 percent interest, and a 30 year repayment period is $271.99.

This is more than the additional income and tax savings associated with the purchase. Thus, income from other enterprises must be used to supplement this purchase.

Year	After-tax income	Tax Savings	Supplemental income needed	Area land values
1	64.20	106.01	101.77	2,592
2	68.69	105.65	97.64	2,799
3	73.50	105.24	93.24	3,023
4	78.65	104.78	88.56	3,265
5	84.15	104.26	83.57	3,526
6	90.04	103.67	78.27	3,809
7	96.35	103.00	72.64	4,113
8	103.09	102.25	66.64	4,442
9	110.31	101.40	60.28	4,798
10	118.03	100.44	53.52	5,181
11	126.29	99.35	46.34	5,596
12	135.13	98.13	38.73	6,044
13	144.59	96.74	30.66	6,527
14	154.71	95.17	22.10	7,049
15	165.54	93.40	13.04	7,613

The MAXIMUM BID PRICE is HIGHER than the MARKET PRICE of comparable parcels in your area. If land values increase at 8.0 % per year, it will take 0.8 years for land values in your area to equal the MAXIMUM BID PRICE.

PLEASE NOTE: If question marks appear in your output, the numbers became so large that it was necessary to round them off before printing. If stars appear in your output, the numbers have become too large to print in the space provided. In either case, please check your data to assure that it is correct.

MARKETING STRATEGIES FOR
GRAIN FARMER
OTTERBEIN,IN
20-Jan-81

COMMENT - A SALE TO A TERMINAL OR PROCESSOR MAY RESULT IN A SLIGHTLY HIGHER PRICE THAN THE NET RETURNS CALCULATED BY USING THE AREA BASIS IN THE TABLE BELOW

ALT NO.	EXP PRICE	TAX SELL	STORE AT HOME	STORE GRAIN AT ELEVATOR	HOME DRY	MOIS-TURE	CBT LOT	MID LOT	LIFT HEDGE IN WEEK NO.	SELL GRAIN TO ELEVATOR	OPTION
1	2.85	YES	YES		YES	18	1	4	30	LOCAL	F
2	2.78	YES	YES		YES	14	1	3	30	LOCAL	A
3	2.75	NO	NO		YES	15.5	0	0		LOCAL	D
4	2.71	NO	NO		NO	23.5	0	0		LOCAL	E
5	2.65	YES	NO	LOCAL	YES	14	1	3	30	LOCAL	G
6	2.62	YES	NO	LOCAL	NO	14	1	3	30	LOCAL	B

The marketing strategy which will give the highest estimated net price of $ 2.85 per bu. is to hedge by selling 1 five thousand bu. MAR futures contracts on the Chicago Board of Trade, and 4 one thousand bu. futures contracts on the Mid American Exchange. The grain should be stored at the farm.

The number of dry bushels for sale is 9003 . If not enough farm storage is available, the difference should be stored in the first elevator in the column titled 'STORE GRAIN AT ELEVATOR'.

The estimated time to lift the hedge by buying offsetting futures contracts is week no. 30 (see TIME CHART). By that time the grain should be sold or kept for speculation if higher prices are expected. Please check the MINIMUM BASIS TABLE in this report to see if the basis is narrowing faster than normal. When the basis reaches the minimum expected level, the hedge should be lifted.

The net price can be obtained only by selling as outlined above. This decision should be considered along with upcoming financial needs, ability to take price risk, and the price outlook for the period ahead.

SELLING FOR HARVEST DELIVERY OR FROM STORAGE INPUT FOR:
GRAIN FARMER
OTTERBEIN,IN
20-Jan-81

FUTURE PRICES

MONTH	OLD CROP PRICE	NEW CROP PRICE
NOV		
DEC		3.765
JAN		
MAR		3.86
MAY		
JUL	3.8675	

Futures date is 1-19-81

Area where grain is to be sold 5
Type of grain corn
You are selling new crop
Harvest date 10-1 -81
Grain is in field
Amount of grain 10(000) Bushels
Amount of storage 10(000) Bushels
Extra handling charge for farm storage 2
Moisture content of grain 23.5 pct
Average age of farm bins and dryers 5 years
The grain will be dried at home
Interest rate for storage cost 15 pct

Your bids are:

BID FOR CORN	ELEVATOR NAME	DISTANCE TO ELEVATOR	MINIMUM STORAGE COST	DATE VARIABLE STORAGE COSTS STARTS			VARIABLE STORAGE COST/MO.	DRY CHRG	SHRINK FACTOR
				MONTH	DAY	YEAR			
3.30	LOCAL	7	13	1	1	82	1.5	0	1.4

OPTION	F	A	D	E	G	B
ALTERNATIVE	1	2	3	4	5	6
PRICE BID AT ELEVATOR	3.3	3.3	3.3	3.3	3.3	3.3
EXPECTED BASIS CHANGE DURING STORAGE PERIOD $	.391	.391	0	0	.391	.391
TOTAL PRICE	3.692	3.692	3.3	3.3	3.692	3.692
INTEREST COST	0.224	0.224	0.000	0.000	0.224	0.224
VARIABLE STORAGE COST	0.086	0.039	0.000	0.000	0.171	0.171
HEDGING COST	0.024	0.020	0.000	0.000	0.020	0.020
TAX COST IF GRAIN IS STORED PAST MARCH 1	0.000	0.000	0.000	0.000	0.000	0.000
TRANSPORTATION COST TO THIS ELEVATOR	0.060	0.060	0.060	0.060	0.060	0.060
SHRINKAGE COST	0.329	0.381	0.329	0.000	0.381	0.439
EXTRA HANDLING COST	0.020	0.020	0.020	0.000	0.020	0.000
DRYING COST	0.098	0.162	0.132	0.000	0.162	0.152
MOIST. DISCOUNT(OR MISC.)	0.000	0.000	0.000	0.528	0.000	0.000
TOTAL COST	0.840	0.906	0.541	0.588	1.039	1.067
EXPECTED PRICE DRY	2.851	2.785	2.759	2.712	2.653	2.624
RETURN TO FIXED COST	0.139	0.073	0.000	0.000	-.059	-.088
FIXED COST	0.099	0.099	0.000	0.000	0.000	0.000
STORAGE PROFIT	0.040	-.026	0.000	0.000	-.059	-.088

THE FOLLOWING PRICES ARE THE AMOUNTS NEEDED TO EQUAL SELLING DRY AT HARVEST WITH PRICE BID AT ELEVATOR SHOWN ABOVE.

JANUARY 1 BREAK EVEN	3.677	3.592	0	0	3.574	3.554
MARCH 1 BREAK EVEN	3.753	3.668	0	0	3.68	3.66
MAY 1 BREAK EVEN	3.865	3.779	0	0	3.825	3.805
JULY 1 BREAK EVEN	3.941	3.856	0	0	3.931	3.911
PRICE SOLD WET AT HARVEST	2.772	2.772	2.772	2.772	2.772	2.772

EXPECTED AND MINIMUM WEEKLY BASIS LEVEL

EXP=EXPECTED BASIS LEVEL. THESE ARE WEEK BY WEEK BASIS LEVELS COMPARABLE TO AN 'AVERAGE' OR 'NORMAL' YEAR. BASIS IS RELATIVE TO THE MONTH (MARCH, MAY OR JULY) SELECTED IN THE MARKETING ALTERNATIVES TABLE.

IF BASIS NARROWS FASTER THAN NORMAL TO THE WEEKLY LEVEL INDICATED IN THE TABLE (INTERIOR NOS.). THE HEDGE MAY BE LIFTED AHEAD OF SCHEDULE.

PLEASE NOTE--If nothing appears between headings containing week numbers and line titled "EXP." all values are zero.

ALT NO.	WEEK NUMBER 1	2	3	4	5	6	7	8	9	10	11	12	13
1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.52	0.50	0.49
2	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.47	0.46	0.45
5	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.48	0.46	0.45
6	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.48	0.46	0.45
EXP	0.00	0.12	0.20	0.25	0.33	0.33	0.29	0.34	0.35	0.38	0.44	0.43	0.51

ALT NO.	WEEK NUMBER 14	15	16	17	18	19	20	21	22	23	24	25	26
1	0.47	0.46	0.44	0.43	0.41	0.40	0.38	0.37	0.35	0.34	0.32	0.31	0.30
2	0.43	0.42	0.41	0.40	0.38	0.37	0.36	0.35	0.33	0.32	0.31	0.30	0.28
5	0.44	0.43	0.42	0.41	0.40	0.39	0.37	0.36	0.35	0.34	0.33	0.31	0.30
6	0.44	0.43	0.42	0.41	0.40	0.39	0.37	0.36	0.35	0.34	0.33	0.31	0.30
EXP	0.56	0.50	0.44	0.43	0.38	0.34	0.31	0.29	0.26	0.27	0.25	0.24	0.26

ALT NO.	WEEK NUMBER 27	28	29	30	31	32	33	34	35	36	37	38	39
1	0.28	0.27	0.25	0.24	0.	0.	0.	0.	0.	0.	0.	0.	0.
2	0.27	0.26	0.25	0.23	0.	0.	0.	0.	0.	0.	0.	0.	0.
5	0.28	0.27	0.25	0.24	0.	0.	0.	0.	0.	0.	0.	0.	0.
6	0.28	0.27	0.25	0.24	0.	0.	0.	0.	0.	0.	0.	0.	0.
EXP	0.24	0.22	0.22	0.23	0.19	0.16	0.16	0.14	0.00	0.00	0.00	0.00	0.00

NAME DR. J.E. SMITH DATE OCTOBER 1981

THE INSTALLMENT LOAN LAND CONTRACT

BASED ON	UNITS	YOUR DATA
TOTAL SALES PRICE	DOLLARS	96000
DOWN PAYMENT	DOLLARS	20000
INSTALLMENT CONTRACT	DOLLARS	36000
Balloon payment at end	DOLLARS	40000
NUMBER OF YEARS	NUMBER	9
INTEREST RATE	PERCENT	13.75
TILLABLE ACRES	NUMBER	40
PAYMENTS PER YEAR	NUMBER	2

DUE TO THE DATA CHARACTERISTICS OF THE FACTS TERMINAL, THE PERIODIC PAYMENTS MAY BE OFF SLIGHTLY (LESS THAN $.01 EACH) NECESSITATING A CORRECTING ADJUSTMENT IN THE FINAL PAYMENT. THE ACCUMULATED TOTAL PAYMENTS (INTEREST AND PRINCIPAL) ARE CORRECT.

LEVEL PAYMENT PLAN

THE AMOUNT OF THE DOWNPAYMENT IS... $ 20000.00

THE INSTALLMENT CONTRACT IS... $ 36000.00

THE BALLOON PAYMENT DUE AT THE END IS... $ 40000.00

THE PAYMENT COEFFICIENT IS... 0.098518

THE PAYMENT SCHEDULE IS AS FOLLOWS

	BEGINNING	---- 2 PAYMENTS PER YEAR ----			REMAINING
YEAR	BALANCE	TOTAL	PRINCIPAL	INTEREST	BALANCE
1	76000.00	6296.63	1071.63	5225.00	74928.37
	74928.37	6296.63	1145.31	5151.33	73783.06
2	73783.06	6296.63	1224.05	5072.59	72559.01
	72559.01	6296.63	1308.20	4988.43	71250.81
3	71250.81	6296.63	1398.14	4898.49	69852.67
	69852.67	6296.63	1494.26	4802.37	68358.41
4	68358.41	6296.63	1596.99	4699.64	66761.42
	66761.42	6296.63	1706.79	4589.85	65054.63
5	65054.63	6296.63	1824.13	4472.51	63230.50
	63230.50	6296.63	1949.54	4347.10	61280.97
6	61280.97	6296.63	2083.57	4213.07	59197.40
	59197.40	6296.63	2226.81	4069.82	56970.59
7	56970.59	6296.63	2379.90	3916.73	54590.69
	54590.69	6296.63	2543.52	3753.11	52047.16
8	52047.16	6296.63	2718.39	3578.24	49328.78
	49328.78	6296.63	2905.28	3391.35	46423.50
9	46423.50	6296.63	3105.02	3191.62	43318.48
	43318.48	6296.62	3318.48	2978.15	40000.00

THE TOTAL INTEREST PAID IS... $ 77339.39

YOUR EQUITY ACCUMULATION IS AS FOLLOWS			YOUR TOTAL PAYMENT (PRINCIPAL AND INTEREST) PER TILLABLE ACRE IS AS FOLLOWS
YEAR	ANNUAL	TOTAL	
1	2216.94	22216.94	314.83
2	2532.25	24749.19	314.83
3	2892.40	27641.59	314.83
4	3303.78	30945.37	314.83
5	3773.66	34719.03	314.83
6	4310.38	39029.41	314.83
7	4923.43	43952.83	314.83
8	5623.67	49576.50	314.83
9	6423.50	56000.00	314.83

DECREASING PAYMENT PLAN

THE AMOUNT OF THE DOWNPAYMENT IS... $ 20000.00

THE INSTALLMENT CONTRACT IS... $ 36000.00

THE BALLOON PAYMENT DUE AT THE END IS... $ 40000.00

THE PERIODIC PRINCIPLE PAYMENT IS ... $ 2000.00

THE PAYMENT SCHEDULE IS AS FOLLOWS

	BEGINNING	----- 2 PAYMENTS PER YEAR -----			REMAINING
YEAR	BALANCE	TOTAL	PRINCIPAL	INTEREST	BALANCE
1	76000.00	7225.00	2000.00	5225.00	74000.00
	74000.00	7087.50	2000.00	5087.50	72000.00
2	72000.00	6950.00	2000.00	4950.00	70000.00
	70000.00	6812.50	2000.00	4812.50	68000.00
3	68000.00	6675.00	2000.00	4675.00	66000.00
	66000.00	6537.50	2000.00	4537.50	64000.00
4	64000.00	6400.00	2000.00	4400.00	62000.00
	62000.00	6262.50	2000.00	4262.50	60000.00
5	60000.00	6125.00	2000.00	4125.00	58000.00
	58000.00	5987.50	2000.00	3987.50	56000.00
6	56000.00	5850.00	2000.00	3850.00	54000.00
	54000.00	5712.50	2000.00	3712.50	52000.00
7	52000.00	5575.00	2000.00	3575.00	50000.00
	50000.00	5437.50	2000.00	3437.50	48000.00
8	48000.00	5300.00	2000.00	3300.00	46000.00
	46000.00	5162.50	2000.00	3162.50	44000.00
9	44000.00	5025.00	2000.00	3025.00	42000.00
	42000.00	4887.50	2000.00	2887.50	40000.00

THE INTEREST PAID IS... $ 73012.50

YOUR EQUITY ACCUMULATION IS AS FOLLOWS			YOUR TOTAL PAYMENT (PRINCIPLE AND INTEREST) PER TILLABLE ACRE IS AS FOLLOWS
YEAR	ANNUAL	TOTAL	
1	4000.00	24000.00	357.81
2	4000.00	28000.00	344.06
3	4000.00	32000.00	330.31
4	4000.00	36000.00	316.56
5	4000.00	40000.00	302.81
6	4000.00	44000.00	289.06
7	4000.00	48000.00	275.31
8	4000.00	52000.00	261.56
9	4000.00	56000.00	247.81

INCOME TAX MANAGEMENT for the FARM

	1980	1981
Total Net Sales from Livestock and other items purchased for resale . . . . (Schedule F):	50000	60000
Sales of raised livestock, crops and other farm products:	50000	55000
Other Farm Income (government payments, custom work, etc.):	500	600
Total Current Farm Expenses . . . . (Part II of Schedule F):	60000	63000
Depreciation . . . . . (Part III of Schedule F):	15000	16000
Additional first year depreciation:	3000	1500

INCOME TAX MANAGEMENT for the FARM

	1980	1981
Sum of Taxable Capital Gains . . . . . (Schedule D):	0	0
Sum of Taxable Capital Losses . . . . . .(Schedule D):	0	0
Total Wages and Salaries you received: (W-2)	0	0
Total Wages received by Spouse: (W-2)	0	0
Farm Partnership Income not previously included:	0	0
Other Non-Farm Earned Income (Schedule C) (profit from fertilizer or seed corn sales):	5000	5000
Taxable Dividends, Interest, and Rent received:	100	100

INCOME TAX MANAGEMENT for the FARM

	1980	1981
Total Contributed to Individual Retirement Account (IRA), or to Keogh Plan:	0	0
Purchases elisible for Investment Credit . . .(3-4 yrs life):	0	0
(Maximum credit is $25,000 plus 70% (5-6 yrs life):	5000	7500
of tax liability over that amount.) (7+ yrs life):	10000	0
Estimate of Itemized Personal Federal Deductions (If you do not normally itemize personal deductions, do not answer):	3500	0

INCOME TAX MANAGEMENT for the FARM

	1980	1981
Number of Exemptions (including self, spouse, dependents):	3	3
Filing Status: 1. Single 2. Married, filing Jointly 3. Married, filing separately 4. Qualifying head of household	2	2

Do you wish to consider income averaging (Y/N)? Y

(If you DO NOT answer "Y", anything you enter below will be ignored.)

	1976	1977	1978	1979
Enter your Taxable Income:	20000	10000	10000	12000

INCOME TAX MANAGEMENT for the FARM

These results are based on your estimates of income and expenses, and the Federal income tax regulations. If the results do not appear to be reasonable, check your input data to make sure it was entered as you intended.

Estimated Tax Data	For 1980	For 1981
Gross farm income for tax purposes	$100,500	$115,600
Net farm income for tax purposes	$22,500	$35,100
Adjusted gross income (includes farm and non-farm income)	$27,600	$40,200
Will itemizing deductions reduce taxes?	Yes	No
Federal income tax due	$4,477	$9,022
Investment credit from purchases this year	$1,333	$500
Federal tax due including investment credit	$3,144	$8,522
Effective Federal income tax rate on each additional dollar of income	28.0%	43.0%
Net earnings subject to self-employment tax	$25,900	$29,700
Self-employment tax due	$2,098	$2,762
Total Federal income AND self-employment tax	$5,242	$11,284
Total Federal income and employment tax rate	28.0%	43.0%
You would have been in a lower tax bracket if your income were lower by this amount	$4,300	$2,000

[You should consider shifting income from 1981 to 1980 to save on taxes.]

Some ways you can shift income from 1981 to 1980 include:

1. Selling grain and market livestock before the end of 1980. Cull breeding livestock.
2. Delay making purchase of inputs to be used next year and postpone repairs.
3. Make arrangements with suppliers to delay payments for supplies until 1981.
4. Collect for off farm or custom work done before 1981.
5. Do not take additional first year depreciation on assets purchased in 1980 and delay additional purchases to 1981.

Each $1,000 invested in machinery in 1980
  can reduce your taxes through depreciation
  and investment credit by this amount $140 $105
(Also consider additional first year depreciation)

Income averaging WAS considered,
  and income in 1980 was high enough relative
  to income in past years to reduce 1980 taxes.

Tax rate without averaging	28.0%
Tax rate with averaging	24.0%
Tax due without averaging	$4,477
Tax due with averaging	$4,102
Tax Savings which result	$375

NOTE: All figures are ESTIMATES and are to be used as GUIDELINES ONLY.

Rerunning the program will allow you to analyze the effects for various changes in your tax situation. If the results indicate you should consider shifting income from 1980 to 1981, you can analyze the effects of delaying the sale of $10,000 worth of grain by reducing the 1980 sales of raised livestock, crops, and other farm products by $10,000 and increasing the 1981 figure by the same amount. Effects of buying or delaying purchase of inputs can be done in a similar way.

The effect of purchasing a new piece of machinery or equipment can be analyzed by changing the regular depreciation, additional first year depreciation, if applicable, and investment credit. Borrowing money to buy the item can increase your interest payments and farm expenses.

NAME:JIM SMITH

GENERALIZED CROP BUDGET OUTPUT FORM 1/

DATE:10-Sep-81

AGRICULTURAL BUDGET ITEMS	YOUR FARM CORN	YOUR FARM SOYBEANS	YOUR FARM ALFALFA	EXAMPLE FARM CORN	EXAMPLE FARM SOYBEANS	EXAMPLE FARM ALFALFA
1.Revision Date of Assumptions				01/81	01/81	01/81
2.INCOME						
3. Expected Yield per Acre	125 BU	45 BU	4 TON	125 BU	40 BU	4 TON
4. Expected Price per Unit	$3.20	$7.00	$65.00	$3.00	$7.50	$61.00
5. GROSS RETURN PER ACRE	$400.00	$315.00	$260.00	$375.00	$300.00	$244.00
6.VARIABLE COST PER ACRE						
7. Fertilizer						
8. Preplant or Plowdown	$53.50	$26.50	$0.00	$48.56	$27.28	$0.00
9. Starter	0.00	0.00	0.00	0.00	0.00	0.00
10. Sidedress or Topdress	0.00	0.00	35.00	0.00	0.00	33.20
11. Limestone	2.50	2.50	10.00	2.50	2.50	10.00
12. Seed	17.00	12.00	14.00	15.63	10.00	12.50
14. Herbicide	12.00	14.00	0.00	11.00	12.00	0.00
15. Insecticide	0.00	0.00	12.00	7.60	0.00	12.00
17. Other	5.00	3.00	0.00	0.00	0.00	0.00
20. Drying	13.00	0.00	0.00	16.25	0.00	0.00
21. Machine Operation	30.00	25.00	26.00	22.75	22.50	22.00
22. Irrigation	0.00	0.00	0.00	0.00	0.00	0.00
23. Interest	10.00	8.00	9.00	8.28	4.95	7.17
24. TOTAL VARIABLE COST PER ACRE	$143.00	$91.00	$106.00	$132.57	$79.23	$96.87
25.FIXED COST PER ACRE						
26. Machinery & Equipment	$50.00	$38.00	$50.00	$40.00	$40.00	$49.00
27. Taxes & Land Maintenance	12.00	12.00	12.00	12.00	12.00	12.00
28. Land Rent Equivalent(Cash Rent)	115.00	115.00	115.00	115.00	115.00	95.00
29. Labor	20.00	15.00	40.00	36.00	32.00	40.00
30. Storage	30.00	11.00	0.00	30.00	10.00	0.00
31. TOTAL FIXED COST PER ACRE	$227.00	$191.00	$217.00	$233.00	$209.00	$196.00
32.TOTAL COST EXCEPT MANAGEMENT	$370.00	$282.00	$323.00	$365.57	$288.23	$292.87
33.INCOME LESS VARIABLE COST	257.00	224.00	154.00	242.43	220.77	147.13
34.RETURN TO MANAGEMENT	30.00	33.00	-63.00	9.43	11.77	-48.87
35.TOTAL VARIABLE COST/UNIT OF YIELD	$1.14	$2.02	$26.50	$1.06	$1.98	$24.22
36.TOTAL COST PER UNIT OF YIELD	2.96	6.27	80.75	$2.92	$7.21	$73.22

1/ This is an interdepartmental program prepared jointly by Agronomy & Agricultural Economics

CROP: CORN

Minimum Expected Price: $2.50 Minimum Expected Yield: 80
Expected Price: $3.20 Expected Yield: 125
Maximum Expected Price: $3.70 Maximum Expected Yield: 140

EXPECTED INCOME LESS VARIABLE COSTS AT DIFFERENT YIELDS AND PRICES
THIS IS THE RETURN TO LAND, LABOR, & CAPITAL

PRICE	YIELD - BU /ACRE 80	103	125	133	140
$2.50	57	113	170	188	207
$2.85	85	149	213	235	256
$3.20	113	185	257	281	305
$3.45	133	211	288	314	340
$3.70	153	236	320	347	375

CROP: SOYBEANS

Minimum Expected Price: $6.00 Minimum Expected Yield: 37
Expected Price: $7.00 Expected Yield: 45
Maximum Expected Price: $8.00 Maximum Expected Yield: 53

EXPECTED INCOME LESS VARIABLE COSTS AT DIFFERENT YIELDS AND PRICES
THIS IS THE RETURN TO LAND, LABOR, & CAPITAL

PRICE	YIELD - BU /ACRE 37	41	45	49	53
$6.00	131	155	179	203	227
$6.50	150	176	202	228	254
$7.00	168	196	224	252	280
$7.50	187	217	247	277	307
$8.00	205	237	269	301	333

CROP: ALFALFA

Minimum Expected Price: $55.00 Minimum Expected Yield: 3
Expected Price: $65.00 Expected Yield: 4
Maximum Expected Price: $75.00 Maximum Expected Yield: 5

EXPECTED INCOME LESS VARIABLE COSTS AT DIFFERENT YIELDS AND PRICES
THIS IS THE RETURN TO LAND, LABOR, & CAPITAL

PRICE	YIELD - TON/ACRE 3.0	3.5	4.0	4.5	5.0
$55.00	59	87	114	142	169
$60.00	74	104	134	164	194
$65.00	89	122	154	187	219
$70.00	104	139	174	209	244
$75.00	119	157	194	232	269

FEEDER CATTLE BREAKEVEN MODEL
Prepared for STEER CALVES

A. Purchase Data

1. Purchase weight		450	pounds/head
2. Purchase price	$	77.50	/cwt
3. Purchasing costs	$	10	/head

(If included in purchase price or in other operating costs, enter 0.)

B. Marketing Data

4. Pay weight		1050	pounds/head
5. Expected Selling Price	$	75	/cwt
6. Marketing costs	$	0	/head

(If selling price is net, or if costs are included in other operating costs, enter 0)

C. Feed and Other Costs

7. Price of corn/bushel,	$	3.60	/bushel
8. Price of corn silage/ton,	$	26.50	/ton
9. Price of hay/ton,	$	65	/ton
10. Price of protein supplement/cwt,	$	12.50	/cwt
11. Price of salt and minerals/cwt,	$	12.50	/cwt
12. Interest rate on purchased feeders and feed		15	%
13. Percent death loss		2	%
14. Other operating costs/head (Veterinary, utilities, bedding,supplies, and equipment repairs.	$	40	/head
15. Desired return to labor and facilities/head,	$	50	/head

D. Feeding Program

Select one of the Following Feeding Programs

0) None-enter your own program in Section E.
1) Choice Steer Calves, High Grain (450-1050 lbs.).
2) Choice Steer Calves, High Silage (450-1050 lbs.).
3) Choice Heifer Calves, High Grain (400-900 lbs.).
4) Choice Heifer Calves, High Silage (400-900 lbs.).
5) Choice Yearling Steers, High Grain (700-1100 lbs.).
6) Choice Yearling Steers, High Silage (700-1100 lbs.).
7) Dairy Steers Fed to Good (450-1100 lbs.).

16. Which feeding program do you want (0-7)? 2

Budget for Choice Steer Calves
using Standard Ration 2

			head	cwt gain
Performance:				
Purchase Weight,lbs			450	
Selling Weight,lbs			1050	
Total Gain,lbs			600	
Average Daily Gain,lbs			2.2	
Days on Feed			270	
Value Produced:				
Sale Value at $75.00/cwt			$787.50	
Purchase Cost at $77.50/cwt			348.75	
Gross Margin			438.75	73.13
Feed Requirements and Costs:				
Corn	34.00 Bu at	$3.60	122.40	20.40
Silage	3.50 ton at	$26.50	92.75	15.46
Hay	0.10 ton at	$65.00	6.50	1.08
Protsup	4.05 cwt at	$12.50	50.63	8.44
Mineral	0.27 cwt at	$12.50	3.38	0.56
Total Feed Cost			275.65	45.94
Operating Costs:				
Interest on Animals (15.0 Pct)			38.74	6.46
Interest on Feed (15.0 Pct)			27.62	4.60
Death Loss (2.0 Pct)			7.95	1.32
Selling and Buying Costs			10.00	1.67
Other Operating Costs			40.00	6.67
Total Operating Costs			124.30	20.72
Total Feed + Operating Costs			399.95	66.66
Return:				
Budgeted Return, Labor+Facilities			38.80	6.47
Minimum Desired Return, Lab.+Fac.			50.00	8.33

Return to Labor + Facilities per Head when

Selling Price/cwt	Purchase Cost per Cwt is: 73.50	75.50	77.50	79.50	81.50
71.00	17.20	7.00	-3.20	-13.40	-23.60
73.00	38.20	28.00	17.80	7.60	-2.60
75.00	59.20	49.00	38.80	28.60	18.40
77.00	80.20	70.00	59.80	49.60	39.40
79.00	101.20	91.00	80.80	70.60	60.40

Break-Even Selling Prices to Cover Feed + Operating Costs and Minimum Desired Return to Labor + Facilities when

Purchase Price/cwt	Corn Price per Bu is: 3.40	3.50	3.60	3.70	3.80
73.50	72.93	73.53	74.12	74.72	75.32
75.50	73.90	74.50	75.10	75.69	76.29
77.50	74.87	75.47	76.07	76.66	77.26
79.50	75.85	76.44	77.04	77.63	78.23
81.50	76.82	77.41	78.01	78.61	79.20

NOTE: To determine price needed to cover only feed + operating costs subtract $4.76 from break even selling price.

Break-Even Buying Prices to Cover Feed + Operating Costs and Minimum Desired Return to Labor + Facilities when

Selling Price/cwt	Corn Price per Bu is: 3.40	3.50	3.60	3.70	3.80
71.00	69.52	68.30	67.07	65.84	64.61
73.00	73.64	72.41	71.19	69.96	68.73
75.00	77.76	76.53	75.30	74.08	72.85
77.00	81.88	80.65	79.42	78.19	76.97
79.00	85.99	84.77	83.54	82.31	81.08

NOTE: To determine what price is needed to cover only feed and operating costs add $11.11 to break even buying price.

Value of Corn fed to beef cattle when

Purchase Price/cwt	Sale Price per cwt is: 71.00	73.00	75.00	77.00	79.00
73.50	3.08	3.41	3.75	4.08	4.42
75.50	2.91	3.25	3.58	3.92	4.25
77.50	2.75	3.09	3.42	3.76	4.09
79.50	2.59	2.92	3.26	3.59	3.93
81.50	2.42	2.76	3.10	3.43	3.77

THE FOLLOWING TWO PAGES ARE THE INPUT VALUES AS YOU ENTERED THEM.
THE RESULTS ARE THEN PRINTED.

ALTERNATIVE LEASE COMPARISONS
Prepared for LEASE

A. Yield and Price Information
2. High Crop Yield (Bu/A) 140
3. Average Crop Yield (Bu/A) 115
4. Low Crop Yield (Bu/A) 80
5. High Crop Price ($/Bu) 3.7
6. Average Crop Price ($/Bu) 3.1
7. Low Crop Price ($/Bu) 2.5

B. Production Expenses
8. Fertilizer ($/A) 60
9. Seed ($/A) 17
10. Chemicals ($/A) 8
11. Pre-harvest Tillage Expenses ($/A) 20
12. Drying and Storage Expenses (Cents/Bu) 16
13. Harvest Expenses ($/A) 15
14. Machinery Hire ($/A) 0
15. Interest and Miscellaneous Expenses ($/A) 12

C. Which of the following leasing methods do you wish to consider
I. Crop Share Leases (Y/N)? Y
II. Custom Incentive Leases (Y/N)? Y
III. Variable Rent Leases (Y/N)? Y
IV. Fixed Rent Leases (Y/N)? Y

D. Alternative Crop-Share Leases
Three alternatives may be analyzed in this section
by entering the landlord percentages.
How many alternatives do you wish to consider (1, 2, or 3)? 2

	Alternative 1	Alternative 2	Alternative 3
16. Income (Pct.)	50	40	
17. Fertilizer (Pct.)	50	40	
18. Seed (Pct.)	50	40	
19. Chemicals (Pct.)	50	40	
20. Pre-harvest Tillage Expenses (Pct.)	0	0	
21. Drying Expenses (Pct.)	50	40	
22. Harvest Expenses (Pct.)	50	0	
23. Machinery Hire (Pct.)	0	0	
24. Interest and Miscellaneous Expenses (Pct.)	35	30	

E. Custom Incentive Leasing

25. Basic Payment to Tenant ($/A) 75
26. Incentive Yield Level (Bu/A) 100
27. Tenant's Share Over Incentive Yield (Pct.) 33.3

F. Variable Rent Leases

Which of the followins do you wish to consider?

Percent of Achieved Yield (Y/N)? Y
Base Yield Payment with County Adjustor (Y/N)? N
Cash Rent with Yield and Price Adjustors (Y/N)? Y

For each of these leases the tenant incurs all of the production costs

I. Percent of Achieved Yield

28. Tenant's Rental Payment (Pct. of Yield) 33.3

III. Cash Rent with Yield and Price Adjustors

32. Tenant's Base Cash Payment ($/A) 115
33. Assumins Normal Yield of (Bu/A) 115
34. And Normal Price of ($/Bu) 3.3
35. Landlord's Share of Rent Adjustment when yield different than normal (Pct.) 50
36. Landlord's Share of Rent Adjustment when price different than normal (Pct.) 50

G. Fixed Rent Leases

I. Based on Yield

37. Tenant's Rental Payment (Bu/A) 40

II. Cash Rent

38. Tenant's Cash Rental ($/A) 115

ALTERNATIVE LEASE COMPARISONS

Prepared for LEASE

TENANT'S RETURNS AND EXPENSES

Crop Share Leasing

A. 50 Percent Crop Share Agreement

Yield (Bu)	140	115	115	115	80
Price $/Bu	2.50	3.70	3.10	2.50	3.70
Income (50 PCT)	175	213	178	144	148
Expenses (58 PCT)	89	87	87	87	84
Return to Labor & Machinery Investment	86	126	91	57	64

B. 60 Percent Crop Share Agreement

Yield (Bu)	140	115	115	115	80
Price $/Bu	2.50	3.70	3.10	2.50	3.70
Income (60 PCT)	210	255	214	173	178
Expenses (70 PCT)	108	105	105	105	102
Return to Labor & Machinery Investment	102	150	108	67	76

Custom Incentive Leases

Yield (Bu)	140	115	115	115	80
Price $/Bu	2.50	3.70	3.10	2.50	3.70
Income					
Cash Payment	75	75	75	75	75
Yield Incentive	33	18	15	12	0
Machinery Expense	35	35	35	35	35
Return to Labor & Machinery Investment	73	58	55	52	40

LANDLORD'S RETURNS AND EXPENSES

Crop Share Leasing

A. 50 Percent Crop Share Agreement

Yield (Bu)	140	115	115	115	80
Price $/Bu	2.50	3.70	3.10	2.50	3.70
Income (50 PCT)	175	213	178	144	148
Expenses (42 PCT)	65	63	63	63	61
Gross Rent	110	149	115	80	87

B. 40 Percent Crop Share Agreement

Yield (Bu)	140	115	115	115	80
Price $/Bu	2.50	3.70	3.10	2.50	3.70
Income (40 PCT)	140	170	143	115	118
Expenses (30 PCT)	47	45	45	45	43
Gross Rent	93	125	98	70	76

Custom Incentive Leases

Yield (Bu)	140	115	115	115	80
Price $/Bu	2.50	3.70	3.10	2.50	3.70
Income	350	425	357	288	296
Expenses					
Payment to Tenant	108	93	90	87	75
Crop Expenses	119	115	115	115	110
Gross Rent	122	217	151	85	111

TENANT'S RETURNS AND EXPENSES

LANDLORD'S RETURNS AND EXPENSES

Variable Rent Leases

A. Percent of Achieved Yield

Yield (Bu)	140	115	115	115	80
Price $/Bu	2.50	3.70	3.10	2.50	3.70
Income (67 PCT)	233	284	238	192	197
Expenses	154	150	150	150	145
Return to Labor & Machinery Investment	79	133	87	41	53

A. Percent of Achieved Yield

Yield (Bu)	140	115	115	115	80
Price $/Bu	2.50	3.70	3.10	2.50	3.70
Income (33 PCT)	117	142	119	96	99
Gross Rent	117	142	119	96	99

C. Cash Rent with Yield and Price Adjustors
(Base level $ 115/Acre for 115 Bu/Acre and $ 3.30/Bu)

Yield (Bu)	140	115	115	115	80
Price $/Bu	2.50	3.70	3.10	2.50	3.70
Income	350	425	357	288	296
Expenses					
Landlord Payment	110	138	104	69	80
Crop Expenses	154	150	150	150	145
Return to Labor & Machinery Investment	85	137	103	68	71

C. Cash Rent with Yield and Price Adjustors
(Base level $ 115/Acre for 115 Bu/Acre and $ 3.30/Bu)

Yield (Bu)	140	115	115	115	80
Price $/Bu	2.50	3.70	3.10	2.50	3.70
Income	110	138	104	69	80
Gross Rent	110	138	104	69	80

Fixed Rent Leases

A. Yield Based (40 Bu/Acre)

Yield (Bu)	140	115	115	115	80
Price $/Bu	2.50	3.70	3.10	2.50	3.70
Income	250	277	233	188	148
Expenses	154	150	150	150	145
Return to Labor & Machinery Investment	96	127	82	37	3

A. Yield Based (40 Bu/Acre)

Yield (Bu)	140	115	115	115	80
Price $/Bu	2.50	3.70	3.10	2.50	3.70
Income	100	148	124	100	148
Gross Rent	100	148	124	100	148

B. Cash Rent

Yield (Bu)	140	115	115	115	80
Price $/Bu	2.50	3.70	3.10	2.50	3.70
Income	350	425	357	288	296
Expenses					
Landlord Payment	115	115	115	115	115
Crop Expenses	154	150	150	150	145
Return to Labor & Machinery Investment	81	160	91	22	36

B. Cash Rent

Yield (Bu)	140	115	115	115	80
Price $/Bu	2.50	3.70	3.10	2.50	3.70
Income	115	115	115	115	115
Gross Rent	115	115	115	115	115

FEEDER PIG BREAK-EVEN MODEL

This analysis was prepared for EXAMPLE

I. Market Information

2.	Expected fat hog price ($/cwt)	52.00
3.	Market weight (lbs)	220.00
4.	Marketing expenses ($/head)	1.50
5.	Purchase price of feeder pigs ($/head)	35.00
6.	Beginning weight of feeder pigs (lbs/head)	50.00
7.	Purchase expenses ($/head)	1.50

II. Input Costs

8.	Price of corn ($/bu)	3.30
9.	Price of supplement ($/ton)	320.00
10.	Labor ($/hr)	5.00
11.	Other operating expenses ($/head)	7.00
12.	Interest rate on feed and animals (percent)	13.00
13.	Fixed costs ($/head)	6.00

III. Production Information

14.	Labor required (hrs/head)	1.00
15.	Death loss (percent)	3.00

If you wish to specify your own ration answer the last three questions. If not enter 0.0 for each question.

16.	Corn fed (bu/head)	9.40
17.	Protein supplement fed (lbs/head)	107.00
18.	Feeding Period (days)	135.00

Budget for EXAMPLE 10-27-80

	HEAD	PER CWT SOLD	PER CWT GAIN
Production Performance			
Purchase Weight,lbs	50		
Selling Weight,lbs	220		
Total Gain,lbs	170		
Average Daily Gain,(lbs/day)	1.3		
Days on Feed	135		
Total Feed Fed,lbs	645		394.49
Value of Production			
Sales ($52.00 /cwt)	110.97	52.00	67.91
Purchase Cost	35.00	16.40	21.42
Gross Margin	75.97	35.60	46.49
Feed Requirements and Cost			
Corn 9.6 bu at $3.30/bu	31.68	14.85	19.39
Protein Supp 107 lbs at $0.16/lb	17.12	8.02	10.48
Total Feed Costs	48.80	22.87	29.87
Other Variable Expenses			
Interest on Animals(13.00 pct)	1.76	0.82	1.07
Interest on Feed(13.00 pct)	1.93	0.91	1.18
Selling and Buying Costs	3.00	1.41	1.84
Operating Expenses	7.00	3.28	4.28
Total	13.69	6.42	8.38
Total Feed and Other Variable Expenses	62.49	29.28	38.24
Returns to-			
Labor, Management, Facilities, and Risk	13.48	6.32	8.25
Less Labor Expenses	5.00	2.34	3.06
Facilities, Management, and Risk	8.48	3.97	5.19
Less Fixed Expenses	6.00	2.81	3.67
Management and Risk	2.48	1.16	1.52

Return to Labor, Facilities, and Risk($ Per Head)

Purchase Price	Sale Price is- 48.00	50.00	52.00	54.00	56.00
31.00	9.13	13.40	17.67	21.94	26.21
33.00	7.04	11.31	15.57	19.84	24.11
35.00	4.94	9.21	13.48	17.75	22.01
37.00	2.85	7.11	11.38	15.65	19.92
39.00	0.75	5.02	9.29	13.55	17.82

Break-Even Buying Prices($ Per Head) to Cover Variable + Facility + Labor Expenses

Selling Price/cwt	When Supplement Price is $320.00/ton and Corn Price per Bu is- 2.90	3.10	3.30	3.50	3.70
48.00	33.06	31.14	29.22	27.30	25.38
50.00	37.13	35.21	33.29	31.37	29.45
52.00	41.20	39.28	37.36	35.44	33.52
54.00	45.28	43.36	41.44	39.52	37.60
56.00	49.35	47.43	45.51	43.59	41.67

Selling Price/cwt	When Corn Price is $3.30/Bu and Supplement Price per cwt is- 300.00	310.00	320.00	330.00	340.00
48.00	30.27	29.74	29.22	28.70	28.17
50.00	34.34	33.82	33.29	32.77	32.25
52.00	38.41	37.89	37.36	36.84	36.32
54.00	42.48	41.96	41.44	40.91	40.39
56.00	46.55	46.03	45.51	44.99	44.46

NOTE-To determine the price needed to cover only variable expenses add $11.00 to the break-even buying price.

Break-Even Selling Prices ($ per cwt) to Cover Variable + Facility + Labor Expenses.

Purchase Price/Head	When Supplement Price is $320.00/ton and Corn Price per Bu is- 2.90	3.10	3.30	3.50	3.70
31.00	46.99	47.93	48.87	49.82	50.76
33.00	47.97	48.91	49.86	50.80	51.74
35.00	48.95	49.90	50.84	51.78	52.72
37.00	49.94	50.88	51.82	52.76	53.71
39.00	50.92	51.86	52.80	53.75	54.69

Purchase Price/Head	When Corn Price is $3.30/Bu and Supplement Price per cwt is 300.00	310.00	320.00	330.00	340.00
31.00	48.36	48.62	48.87	49.13	49.39
33.00	49.34	49.60	49.86	50.11	50.37
35.00	50.33	50.58	50.84	51.10	51.35
37.00	51.31	51.56	51.82	52.08	52.33
39.00	52.29	52.55	52.80	53.06	53.32

NOTE-To determine the price needed to cover only variable expenses subtract $5.15 from the break-even price.

Value of Corn ($/Bu.) Fed to Hogs After Covering Variable + Facility + Labor Expenses.

Purchase Price/Head	When Soybean Meal Price is $320.00/ton and Market Hog Prices are 48.00	50.00	52.00	54.00	56.00
31.00	3.12	3.55	3.97	4.39	4.82
33.00	2.91	3.34	3.76	4.19	4.61
35.00	2.71	3.13	3.55	3.98	4.40
37.00	2.50	2.92	3.35	3.77	4.19
39.00	2.29	2.71	3.14	3.56	3.99